

Curriculum Vitae

Personal Data:

Name: Pantea Davoudifar; Born: October 1, 1973

Languages:

Persian (mother tongue) , **English** (Reading, Writing: Fluent, Speaking: Good);

Turkish (Azari, somewhat: Understanding), **Türkçe** (Istanbuli: Understanding, Reading, Speaking; Good)

Current Academic Job Title:

Assistant Professor,

Research Institute for Astronomy and Astrophysics of Maragha (RIAAM), Iran

Academic Degrees:

Ph.D., Astroparticle Physics, **Shahid Bahonar University of Kerman**, Kerman, Iran, 2010

M. Sc., Astrophysics, **Shahid Bahonar University of Kerman**, Kerman, Iran, 2005

B. Sc., Applied Physics, **Sharif University of Technology**, Tehran, Iran, 1998

Dissertations:

Ph. D.: Analyzing the Origin of Antiprotons in Diffusion Model, Analyzing the Origin of Extragalactic Diffuse Gamma Rays; Supervisor: *Prof. Seyed Jalilaldin Fatemi*

M. Sc.: Origin of Antiparticles in Cosmic Rays; Supervisor: *Prof. Seyed Jalilaldin Fatemi*

Memberships and Achievements:

Top student of Master of Physics, Shahid Bahonar University of Kerman, 2002-2005

The *superior researcher* of RIAAM (Research Institute for Astronomy and Astrophysics of Maragha) by 2015;

Member of Editorial Board in *Applied Physics Research*;

Peer Reviewer at *Journal of Classical and Quantum Gravity*;

Peer Reviewer at *Iranian Journal of Science and Technology, Transaction A*;

Peer Reviewer at *Journal of Research in Many Body Systems*;

Peer Reviewer at *Global Journal of Science Frontier Research*;

(*More than 50 peer reviewed papers*);

Member of *Astronomical Society of Iran*;

Member of *Physics Society of Iran*;

Teaching:

B.Sc.: (At Shahid Bahonar University of Kerman, when I was MSc and PhD student, before 2010)

General Physics I, II;

General Physics for Engineering Students;

General Physics for Biology Students;

Analytical Mechanics I, II;

Statistical Mechanics;

Astrophysics;

Quantum Mechanics I, II;

Electricity and Magnetism I, II;

Analytical Mechanics I,II; Azad University of Maragha; **2011**

Master: (At Research Institute for Astronomy and Astrophysics of Maragha as Assistant Professor, from 2011)

Advanced Statistical Mechanics; Graduate course (Master);

Computational Physics; Graduate course (Master);

Advanced Electrodynamics I, II; Graduate course (Master);

Physics of Pulsars; Graduate course (Master);

Elementary Particle Physics; Graduate course (Master);

Structure and Evolution of Galaxies; Graduate course (Master);

Physics Seminar; Graduate course (Master);

Special Topics (Astrophysics and Astroparticle Physics), Graduate course (Master):

Space Plasma; Graduate course (Master); (Under the title of Special Topics)

Cosmology; Graduate course (Master); (Under the title of Special Topics)

Advanced Astrophysics I, II; Graduate course (Master); (Under the title of Special Topics)

High Energy Astrophysics I, II; Graduate course (Master); (Under the title of Special Topics)

Interstellar Magnetic Fields; Graduate course (Master); (Under the title of Special Topics)

Physics and Astrophysics of Cosmic Rays; Graduate course (Master); (Under the title of Special Topics)

Ph.D:

(At RIAAM, we offer project based PhD degrees; the students have 8 credit for their theoretical courses and 32-36 credits for their Thesis)

Preparing the proposal of PhD; (PhD):

Special Topics (Astrophysics and Astroparticle Physics); (PhD);

Astroparticle Physics I, II; (PhD); (Under the title of Special Topics)

Cosmic Rays' Physics I, II; (PhD); (Under the title of Special Topics)

Cosmic Rays' Propagation Models; (PhD); (Under the title of Special Topics)

High Energy Astrophysics I, II; (PhD); (Under the title of Special Topics)

Space Plasma Physics; (PhD); (Under the title of Special Topics)

Electro-Magneto Hydrodynamics; (PhD); (Under the title of Special Topics)

Physics of Heliosphere; (PhD); (Under the title of Special Topics)

Elementary Particle Physics; (PhD); (Under the title of Special Topics)

Special and General Relativity; (PhD); (Under the title of Special Topics)

Cosmology; (PhD); (Under the title of Special Topics)

Physics of Dark Matter; (PhD); (Under the title of Special Topics)

Teaching in Workshops:

6th Advanced Workshop in Astrophysics, 10-15 September 2011;

Subject: Astroparticle Physics,

Research Institute for Astronomy and Astrophysics of Maragha

7th Advanced Workshop in Astrophysics, 18-23 August 2013;

Subject: Astroparticle Physics,

Research Institute for Astronomy and Astrophysics of Maragha

9th Preliminary Workshop in Astrophysics, 27 August-1 September 2012;

Subject: Astroparticle Physics,

Research Institute for Astronomy and Astrophysics of Maragha

10th Preliminary Workshop in Astrophysics, 27 August-1 September 2015;

Subject: Dark Matter,

Research Institute for Astronomy and Astrophysics of Maragha

International Talks:

Invited Speaker at: 70th anniversary of Byurakan Astrophysical Observatory, 2016, 19-23 Sep, Armenia, Non-Stable Universe: Energetic Resources, Activity Phenomena and Evolutionary Processes,
Title of Talk: Large Scale Magnetic Fields and Cosmic Ray's Propagation

PhD & Master Students:**First Supervisor of:****Master Students (4, graduated):**

Mrs Mohadese Seyfi Hossein Abadi, Research Institute for Astronomy and Astrophysics of Maragha;

Title of Thesis: **"The Simulation of Galactic Magnetic Field and its Effect on Identifying the Galactic Sources of Very High Energy Cosmic Rays"**

(Graduated in 2015)

Mrs Neda Abtin Nia, Research Institute for Astronomy and Astrophysics of Maragha;

Title of Thesis: **"Muons, their Astrophysical Origin and the methods of Muon Detection"**

(Graduated in 2016)

Mr Mohammad Hossein Talezadeh Lari, Research Institute for Astronomy and Astrophysics of Maragha;

Title of Thesis: **"A Method of Evaluation of Photometric Infrared Redshift for Unknown Objects of IRAS PSF/FSC Catalogue"**

(Graduated in 2017)

Mrs Vajihe Sabzali, Research Institute for Astronomy and Astrophysics of Maragha;

Title of Thesis: **"The effect of merging on radio activity of AGN in galaxy groups"**

(Graduated in 2017)

PhD Students(3, graduated):

Dr. Zahra Bagheri, PhD Degree, Research Institute for Astronomy and Astrophysics of Maragha;

Title of Thesis: **"The Effect of Solar Particles on Satellites and Their Electronical Components"**

(Graduated in 2017)

Dr. Milad Shayan, PhD Degree, Research Institute for Astronomy and Astrophysics of Maragha;

Title of Thesis: **"The Study of Forbush Effect and Study of Changes in particle's fluxes near the Earth due to Solar Activity"**

(Graduated in 2017)

Dr. Majid Lashkanpour, PhD Degree, Research Institute for Astronomy and Astrophysics of Maragha;

Title of Thesis: **"The effect of Solar Storms on Satellite Orbits"**

(Graduated in 2017)

Mr Fakhaldin Akbarian, PhD Student, Research Institute for Astronomy and Astrophysics of Maragha;

Mr Abbas Eslami Shafigh, PhD Student, Research Institute for Astronomy and Astrophysics of Maragha;
(is going to graduate by the end of next semester)

Advisor of (2, graduated):

Mr. Hojat Dehghani, PhD Student, Shahid Bahonar University of Kerman;

(is going to graduate by the end of this semester)

Dr. Saied Doostmohamadi, PhD Degree, Shahid Bahonar University of Kerman;

(Graduated in 2014)

Mr. Majid Jalalabadi, Master Degree, Shahid Bahonar University of Kerman;

(Graduated in 2012)

Programming and Application skills:

IDL, Fortran programming, C++
SSW (under Linux),
CORSIKA simulation,
FLUKA Simulation,
CERNROOT,
Scikit-Learning,
CRPropa,
GALPROP,
AIPS,
AstroImageJ,
ENZO,
Neural Network under MATLAB,
SVC,

Field of Research Activities:**Theoretical Studies on:**

“Propagation Models of Cosmic Rays”;
“The Origin of Antiparticles Observed in Cosmic Rays”;
“The Origin of Very High Energy Cosmic Rays in Top-Down and Bottom-Up scenarios”;
“The Effect of Solar Particles (especially particles from CMEs and Flares) on Satellite orbits and onboard computers devices”;
“Pulsar Origin of High Energy Cosmic Rays”;
“Modelling the Galactic Magnetic Field”;

Simulations Studies related to:

“Galactic and Extragalactic Magnetic Fields”;
“Time Delays of UHE Cosmic Rays in the Magnetic Fields”;
“Phenomenological Studies of High and Low Energy Primary Particles Initiating EASs, LDFs and ...”
“Fluorescent light by Extensive Air Showers”
“Solar neutrons in vicinity of the Earth”

Current Research Proposals:

“Project Number 92/900/900/1122 with Iranian Space Agency”;
“Time Delays and the Origin of Very High Energy Cosmic Rays”;
“The Residence Time of Galactic Cosmic Rays in Different Propagation Models”;
“Theoretical Studies for Indirect observation of WIMP”
“The Study of Galactic, Extragalactic and Galaxy Cluster's Magnetic Fields”;
“The Study of Solar Modulation and its Effects on Observed Antiprotons of Cosmic Rays”;
“CORSIKA Simulation and Studies for Yakutsk Array Data”;
“Possibility of a Proton Flux from Coma Supercluster Direction”;
“A Pulsar Origin of Very High Energy Cosmic Rays”

Contact Info:

Research Institute for Astronomy and Astrophysics of Maragha, PO Box: 55177-36698,
Maragha, Eastern Azarbaijan, Iran; Phone: 0098-41-37412222; Fax: 0098-41-37412224;
Mobile: 0098-9123438012 ; 0098-9127950661; Email: p_davoudifar@yahoo.com; Official Site: www.riaam.ac.ir

Complete list of publication of Pantea Davoudifar

Monograph:

1- Contributed Author in: “New Researches in Astronomy, Astrophysics and Cosmology” to be published by *Sharif University of Technology, Dr. Jafar Aghayani Chavoshi*; Topic: “Modeling the Galactic Magnetic Field and its Application in Analyzing UHECR Sources”, to be published in **2018**

2- Contributed Author in: “Non-Stable Universe: Energetic Resources, Activity Phenomena and Evolutionary Processes”, (2017): “Magnetic Fields at Large Scales and Their connection with Ultra High Energy Cosmic Rays”, *Astronomical Society of the Pacific Conference Series*, 511, 246

Further publications:

A) Publications with peer review process

1. Davoudifar P., Fatemi S. J., (2009): “Detailed analysis of observed antiprotons in cosmic rays”, *Iranian Journal of Physics Research*, 9, 51-54

2. Davoudifar P., Fatemi S. J., Clay R., & Whelan B., (2011): “Time Delays in Cosmic Ray Propagation”, *Journal of Sciences, Islamic Republic of Iran*, 22(1): 75-84

3. Davoudifar P., & Fatemi S. J., (2011): “Extragalactic Gamma Ray Excess from Coma Supercluster Direction”, *Journal of Astrophysics and Astronomy*, 32: 359-370

4. Davoudifar P., and Rowshan Tabari K., (2013): “A simulation based study of maximum development of extensive air showers in highest energies”, *Journal of Physics: proceedings series*, 410:012087

5. Davoudifar P., and Rowshan Tabari K., (2014): “Modelling the Galactic Magnetic Field and its Application in verifying a Pulsar Origin of Very High Energy Cosmic Rays”, *Journal of Physics: proceedings series*, 490:012029

6. Davoudifar P., and Rowshan Tabari K., (2014): “Statistical Study of Extensive Air Showers and the Question of Mass Composition”, *Astronomy Letters*, 40(12): 821-828

7. Shayan M.*, **Davoudifar P.**, and Ajabshirizadeh A., (2016): “A Study of Forbush Effect during Halloween Storm”, *Iranian Journal of Science and Technology, Transactions A: Science*, 40(3), 177–181

8. Davoudifar P., and Rowshan Tabari K., (2015): “The Effect of a Non-Isotropic Flux of Very High Energy Cosmic Rays on the values of Mean Shower Maxima”, *Journal of Physics: proceedings series*, 574(1):012098

9. Davoudifar P., and Rowshan Tabari K., (2015): “Development of a Galactic Magnetic Field Model and its Application in Identifying Sources of Ultra-High-Energy Cosmic Rays in Northern Sky”, *Journal of Physics: proceedings series*, 633(1):012055

10. Davoudifar P., (2016): “Modelling a Kolmogorov-Type Magnetic Field in the Galaxy and its Effect on an Extragalactic Isotropic Flux of Ultra High Energy Cosmic Rays”, *Journal of Physics: proceedings series*, 738(1):012035

11. Molaverdikhani K., Ajabshirizadeh A., **Davoudifar P.**, Lashkanpour M.*, (2016): “Complexity of the Earth’s space-atmosphere interaction region (SAIR) response to the solar flux at 10.7 cm as seen through the evaluation of five solar cycle two-line element (TLE) records”, *Advances in Space Research*, 56(6): 924-937

12. Bagheri Z.*, **Davoudifar P.**, Ajabshirzade A., and Shayan M.*(2016): , “The Effect of Solar Particles in the Choice of Alloy Shielding in a Satellite”, *Iranian Journal of Astronomy and Astrophysics*, 3(1), 65-74
13. Bagheri Z.*, **Davoudifar P.**, Rastegarzade G., Shayan M.*, (2017): “Application of CORSIKA simulation code to study Lateral and longitudinal distribution of fluorescence light in Cosmic Ray Extensive Air Showers”, *Journal of Astrophysics and Astronomy*, 38:4
14. Bagheri Z.*, **Davoudifar P.**, Ebadi H., (2017): “Simulation of Proton Flux in Different Cycles and during Solar Flares”, *Journal of Research on Many Body Systems*, 7:203
15. Shayan M.*, **Davoudifar P.**, Bagheri Z.*, (2017): “The Study of Variations of Low Energy Cosmic Helium’s Flux (up to 6 MeV) due to Solar Activity”, *Advances in Space Research*, 59:2,186–2191
16. Dehghani H.*, Fatemi S.J, **Davoudifar P.**, (2017): “Studying depth of shower maximum using variable interaction length”, *Astrophysics and Space Science*, 362:89
17. **Davoudifar P.**, Rowshan Tabari K. and Doostmohammadi S., (2017): “Propagation of Ultra High Energy Cosmic Rays from Galactic Sources in a Fractal Interstellar Medium and Origin Studies”, *Journal of Physics: proceedings series*, **936(2017):012040**

Conference papers with peer review process

18. **Davoudifar P.**, (2011): “Time Delay, Deflection Angle and the Possible Origin of the Highest Energy Cosmic Rays”, *Proceeding of 32th International Cosmic Ray Conference*, Beijing, 2: 230-234
19. Bagheri Z.*, **Davoudifar P.**, (2015): “Evaluation the Effect of Energetic Particles in Solar Flares on Satellite Electronic Computer’s lifetime”, **Proceedings of first Armenian-Iranian Astronomical Workshop, 13-16 october 2015, Byurakan, Armenia, 137-142**
20. Sabzali, V.*, **Davoudifar, P.**, Mickaelian, A., (2015): “The Study of Relativistic AGN Jets and Experimental Survey of AGN Properties”, **Proceedings of first Armenian-Iranian Astronomical Workshop, 13-16 october 2015, Byurakan, Armenia, 233-238**
21. Talezade Lari, M.H.*, **Davoudifar, P.**, Mickaelian, A., (2015): “The Interrelationship Between Interactions/Merging, Starburst and AGN Phenomena based on IR Sample”, **Proceedings of first Armenian-Iranian Astronomical Workshop, 13-16 october 2015, Byurakan, Armenia, 213-218**
22. **Davoudifar P.**, Fatemi S. J., & Arjomand Kermani H., (2010): “The Origin of Diffuse Gamma Ray Continuum on the Northern Hemisphere: The Results”, *Proceedings of 13th Research Meeting on Astronomy*, IASBS, 157-161
23. **Davoudifar P.**, (2011): “The Results of a Simulation of Galactic and Extragalactic Magnetic fields and the Origin of the Highest Energy Cosmic Rays”, *Proceedings of 15th Research Meeting on Astronomy*, IASBS, 221-225
24. Abbasi A.*, and **Davoudifar P.**, (2012): “A preliminary study of number density variations of Muon and Electron with zenith angle changes in Extensive Air Showers(low energy ranges)”, *Proceedings of 16th Research Meeting on Astronomy*, IASBS, 78-81
25. **Davoudifar P.**, and Rowshan Tabari K., (2012): “A Survey on Artificial Changes of EAS Parameters Around 1019 eV due to Zenith Angle Changes”, *Proceedings of 16th Research Meeting on Astronomy*, IASBS, 123-127
26. Abbasi A.*, and **Davoudifar P.**, (2012): “A study of Muon and Electron numbers on observation level due to changes of zenith angle in Extensive Air Showers”, *Proceedings of Annual Physics Conference of Iran*, 1118-1122
27. **Davoudifar P.**, and Lashkanpour M.*, (2013): “The Effect of Solar Cosmic Rays on Satellites, (a preliminary study)”, *Proceedings of 17th Research Meeting on Astronomy*, IASBS, 241-245
28. Shayan M.*, **Davoudifar P.**, and Ajabshirzade A., (2013): “A Study of Forbush effect In Solar Event of Halloween Storm”, *Proceedings of 3rd Iranian National Meeting of Space Radiations*, 151-155

- 29. Davoudifar P.**, and Rowshan Tabari K., (2014): “The component of the perturbing acceleration of a Satellite due to solar energetic particles; Its order of magnitudes and its relation by Solar flare types”, *Proceedings of the 7th National Meeting of Astronomy and Astrophysics of Iran*, SBUK, 171-175
- 30. Shayan M.***, **Davoudifar P.**, and Ajabshirizade A., (2014): “A Study of Forbush effect In Solar Event of September 2005”, *Proceedings of the 7th National Meeting of Astronomy and Astrophysics of Iran*, SBUK, 176-180
- 31. Bagheri Z.***, **Davoudifar P.**, (2015): “Considering the effect of solar flares in the choice of alloy shielding in satellites”, *Proceedings of 2nd International Conference of Recent Trends in Science, Engineering and Technology*, Istanbul
- 32. Bagheri Z.***, **Davoudifar P.**, and Ajabshirizade A., (2015): “A Simulation Based Evaluation of Local Fluxes of Secondary Cosmic Rays at Tehran”, *Proceedings of the 9th National Meeting of Astronomy and Astrophysics of Iran*, AUT, 1-9
- 33. Davoudifar P.**, (2015): “Galactic Magnetic Fields and High Energy Cosmic Rays: A Correlation Analysis of Cosmic Rays’ Galactic Directions and the Directions of Their Galactic Sources; First Part: The Northern Hemisphere”, *Proceedings of Annual Physics Conference of Iran*, 884-889
- 34. Seyfi M.***, **Davoudifar P.**, (2015): “The Effect of Magnetic Halo on Anisotropy of Ultra-High-Energy Cosmic Rays”, *Proceedings of Computational Physics Conference of Iran*, 221-225
- 35. Bagheri Z.***, **Davoudifar P.**, (2015): “Evaluation of the maximum generated neutrons into a flying airplane deduced by cosmic ray protons”, *Proceedings of Modern Achievements on Aerospace and Related Sciences*, 143-147
- 36. Seyfi M.***, **Davoudifar P.**, (2016): “The Study of Correlation between the Direction of Very High Energy Cosmic Rays and Galactic milliseconds Pulsars, Under the Influence of a Turbulent Magnetic Field in Galactic Halo”, *Proceedings of 19th Research Meeting on Astronomy*, IASBS, 161-165
- 37. Talezade Lari, M.H.***, **Davoudifar, P.**, Mickaelian, A., (2016): “Declassing Stars and Galaxies in IRAS PSC/FSC catalogue using Neural Networks (SVM)”, *Proceedings of 19th Research Meeting on Astronomy*, IASBS, 122-126
- 38. Davoudifar, P.**, Abtin Nia, N.*, (2017): “A simulation of local Muon Flux and its Verification using a Charged Coupled Device”, *Proceedings of Annual Physics Conference of Iran*, Yazd University, 303-306

B) Submitted publications with peer review process

C) Publications without peer review process

D) Submitted manuscripts without peer review process

E) Patents

F) Precontracts with publishers

- **Monograph number 1, is going to be published by Sharif University of Technology in Persian language.**
- **Publications: A1 have evolved from my doctoral dissertation.**
- **The following above mentioned publications are conference papers with peer review processes:**

A18, A19, A20, A21

- **The following above mentioned publications were presented in Persian language and have no online electronic versions, but they are conference papers with peer review processes:**

A22, A23, A24, A25, A26, A27, A28, A29, A30, A31, A32, A33, A34, A35, A36, A37

- **Contributed Authors marked with a *, are my PhD, and Master Students as mentioned in completed C.V.; in our institute the student’s name comes before her/his supervisor’s name.**
- **Duplicate publications (presented in conference and published with a journal later) were removed.**